to advise and prescribe preoperative medication. In other words he should be a medical consultant as well as an anesthetist. Who but a licensed physician can perform these services?

In case of death under anesthesia the courts have held the hospital liable where technician anesthetists have been used, holding that all reasonable precautions were not taken in the case. This is a risk that a hospital takes each time an anesthetic is administered by a lay anesthetist.

In closing I wish to make a plea for:

First: More adequate instruction in anesthesia in our medical schools, that the science and specialty of anesthesia may be advanced and the lives of patients safeguarded.

Second: Justified recognition by the American Medical Association in the formation of a Section in Anesthesiology. I ask you all to work to these ends.

I also wish to reiterate and stress the following:

First: That anesthesia is the practice of medicine and is a medical specialty.

Second: That the patient is safeguarded and the surgeon is freed to do better work by concentrating his whole attention on his own field, when a competent physician administers the anesthetic.

Third: That the one and only excuse for a lay technician in the field of anesthesia is the impossibility of obtaining a medical anesthetist.

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POSTURAL TENSIONS FOR NORMAL AND ABNORMAL HUMAN BEHAVIOR—THEIR SIGNIFICANCE*

PART II

By E. J. KEMPF, M. D.
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DISCUSSION *by H. G. Mehrtens, M. D., San Francisco; Walter F. Schaller, M. D., San Francisco.*

WE have briefly discussed postural tensions in relation to movement, and we wish now to sketch postural tensions in relation to sensation.*

POSTURAL TENSION IN RELATION TO SENSATION

Diagram 3 shows how the exteroceptor and its environmental stimuli are associated with the proprioceptor and internal stimuli. Our mentation is composed of streams of exteroceptive sensations blended with proprioceptive sensations into a common order, making the content of consciousness or the stream of mentation.

Now, practically all of our exteroceptors, except the visual, are wide open to their particular environmental stimuli, and if we did not have some means of shutting off their percussions from reaching our vital functions we would soon be in a state of maniacal panic reacting without self-control.

We seem to perform this continuous self-protective function through the postural tensions of the cerebrospinal and autonomic muscle systems, constituting attitude. Through postural attitudes we are able to focus attention, or rather regulate our reactivity, so that we locally or generally raise or lower the threshhold of reactivity reflexly as we need, to maintain our equilibrium and sense of proportions of the destructive and constructive environmental forces as they are related to our potential strength and weakness and the nature of our affective needs.

Naturally, when we lose control of our affective pressure, and it changes despite our best efforts, the poise of our attitude breaks down and we can see our postural tensions (bodily and facial expressions) change. Through these changes we read the nature or state of one another's affective pressure or emotions and the degree of his control of them.

INTERPRETATION OF POSTURAL TENSIONS

This brings us to a new language of symptoms and meanings of postural tensions in relation to attitude and character formation. As a people we are still quite ignorant in our understanding of the meanings of our own postural tensions. We are more adept at seeing through others than seeing through ourselves (whom we would have perfect), until we reveal ourselves to others who then kindly or cruelly show us what they see in us, much to our benefit or chagrin.

As physicians, our clinical responsibilities compel us to burden ourselves not only with the study of the symptoms of organic diseases, but with the study of the more elusive and subtle meanings of symptoms of functional diseases, of the psychoses, and particularly those distressing neuroses of hypertensions and hypotensions of the vital organs which have impaired but not overcome the integrity of the personality.

The most serious of the postural tensions are not those which are adapted to control the influence upon us of environmental situations, but those which are used to suppress emotions and wishes and memories within ourselves of which we are fearful because they are ridiculous, wrong, dangerous, or asocial. As the suppressed affective pressure accumulates and becomes intense, the viscera assume hypertensions like compressed springs as if the affective pressure accumulated in the tensions of the neuromuscular circuits. Our clinical experience shows that such distressing states of functional hypertension may involve any of the vital organs containing muscle tissue. We find it in the heart and arterial and capillary blood vessels, the pharynx, bronchial tubes, esophagus, stomach, small intestine, colon, rectum, and genito-urinary organs. Sometimes emergency surgical interference is necessary, but far more often it is decidedly unnecessary and, for the future of the patient, most unwise. Many of our surgeons need to be educated about the psychopathology of spastic and flaccid tonus of the viscera.

The continuous problem of everyday life for every man is to solve his personal relations so as to fit them to his affective pressure, and solve

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*Read before the Neuropsychiatry Section of the California Medical Association at the fifty-ninth annual session at Del Monte, April 28 to May 1, 1930. Part I was printed in September California and Western Medicine, page 182.

his affective pressure so as to fit himself to his personal relations. When environmental situations (particularly personal relations) are intolerable we turn away from them or try to change them. When we cannot change them we must change our affectivity.

We can change our affectivity through suppression, until the wishes or feelings cannot act although we are conscious of them. We may hold the affective pressure in suppression until a suitable opportunity develops, by assuming characterological postural tensions, mannerisms, and beliefs.

We may need to suppress our wishes so as to forget them, get rid of them, that is to say, become unconscious of them; and not succeed in doing it because too many suggestive influences keep us conscious of them: then we are preoccupied, confused and distracted, much to our inefficiency. There is an obvious contrast between the postural tensions of an alert person and one who is distracted and confused.

We may repress our feelings so that we no longer are conscious of them (cannot remember them) by concentrating more intently upon a covering attitude, mannerism, and belief. Now, when such defenses become persistent, severe, incapacitating, and are analyzed effectively so as to bring relief, we find that patients invariably pass through changes from postural hypertensions to states of normal relaxation, or from hypotension and apathy or dejection to normal firmness. We see these phenomena even after many years of persistent abnormal tension.

Our postural tensions reveal our way of holding our affective pressure so as to fit it to our situations as we see them. We are all aware of the characterological quality of a great many forms of postural tension and are readily able to read the more simple ones such as humility and obeisance, dignity, pride, haughtiness, cowardice, courageousness, timidity, bluffing, threatening, indifference, earnestness, etc. We are not so adept at reading the more subtle, complicated and eccentric postural tensions. Often the form of the postural tensions reveals the nature of the suppressed or repressed effect. This is particularly so when we know what the personal relations are and what the ways of thinking about them are like.

When the repressed affect is too vigorous and the individual is too fearful of it, severe compensatory postural tensions develop which may finally become unadaptable to the social situations. Thus psychoses with delusions, such as the maniacal and paranoid types, and obsessions, phobias, the hysterical attitudes, spastic and flaccid paralyses, and paresthesias develop.

When the affective pressure is too vigorous to be controlled by the postural tensions of the ego and it becomes displaced from reality and dissociated from the ego to pursue its own course of internal sensorimotor wishfulfillment, then hallucinations and phantasying, so common in dementia praecox, develop.

The postural tensions of the viscera become involved as the affective pressure is dammed up from its normal outlets of projective functioning. Thus we have visceral hyper- and hypotensions which produce great distress and malfunctioning; constituting functional and metabolic, and finally, organic disease as the tissue cells become hypertrophic from excessive use or atrophic from disuse. The circulatory system, local or general, is always intimately involved according to the nature of the suppressed affective pressure and the tensions which are developed.

Obviously, social obligations and responsibilities are often such that they are paramount to the affectivity of the individual and he must suffer the disease-producing consequences of having to suppress an antisocial affective pressure. The cure of his diseased functioning lies in inducing a healthful affective readjustment by producing such changes in his personal relations as will make it possible for him to get some self-expression, self-understanding, and self-control so that he can again function more normally.

When we cannot change our feelings or thoughts and they are impractical and unwise, we must get someone who understands us and can help us to change them, through (1) reasoning with us, (2) sympathetically persuading us, (3) analyzing us until we change, or (4) compelling us to change through punishment.

We all tend to have a general normal postural tonus when our work, thoughts, beliefs, and phantasies about the realities of our social situation are effective and reassuring. When the realities of our situation are not reassuring but are actively disturbing to our reasoning, then our autonomic balance becomes disturbed. When our beliefs about our situation, although it is actually safe, are not reassuring, our autonomic status also becomes upset. When our situation is really unsafe but we entertain reassuring pleasing phantasies and beliefs about it, we live in a dangerous state of comfortable functioning when we should really be in a state of autonomic dysrythmia. Many people live in wishfulfilling phantasies rather than face the realities of life because therein they feel more comfortable. Many persons develop psychoses replete with pleasureful phantasies mingled with disturbing insight into the reality of their plight. Many finally abandon the phantasy system to endure the realities and make the best of it. Many abandon all realities and submerge themselves in continuous phantasies for relief and even happiness.

Hence the physician, in analyzing his patient's autonomic status, should correlate it with his beliefs, phantasies, personal relations, general interests, economic and social status, work and play. If the patients' autonomic functioning is normal and he is doing his everyday work well enough we have a healthy person. If his autonomic status is normal but the patient is living in illusions and phantasies, his situation is dangerous and he needs to be pulled out of it and put to work, even at the risk of some temporary autonomic disturbance, until he becomes reconditioned to

liking work, that is, he becomes autonomically responsive to work.

If our patient shows autonomic hypertension or hypotension, and his work is too distressing or severe for his powers, producing fear of failure, he must be influenced to let up. If his autonomic tonus shows stress and his daily work is of an ordinary nature which he should be able to carry fairly easily, then we know that his attitude, belief, ideal, pride, philosophy, imaginations about what he is trying to accomplish, or his fear of failure, or fear of some particular person's scorn (probably business or marital partner), is the pathologic cause; and he must be influenced to change his views and philosophy so that he can lose without developing compensatory tensions.

When the postural tonus is hypertense or hypotense and the patient is not trying to be productive or creative, but is living a life of idle dreams and phantasies, his situation is grave; and we must do everything possible to influence him to take up some occupation with realities, in the form of recreation and attractive work, to relieve the tensions which attend futility and social inferiority.

Fear of failure in any form tends to produce hypertensions, whereas indifference to failure tends to produce hypotensions.

SUMMARY

Postural tensions of the striped and unstriped muscular systems have great significance for human behavior, both normal and abnormal, in that they are the basis for overt action, constitute attitude and characterological qualities of the personality, and contribute to the control of attention, mentation, and sensation.

Wading River, Long Island.

DISCUSSION

H. G. MEHRTENS, M. D. (Stanford University Hospital, San Francisco).—Doctor Kempf's paper seems to me very comforting. He makes a psychiatric problem understandable to the physiologically trained man. It is just this sort of work that is so necessary if we are to keep psychiatry as a medical specialty. Too frequently at the present time is the psychiatrist forced to utilize two distinct sets of unrelated facts. On one hand, he has facts related to physics, chemistry, physiology, and biology; on the other hand, he has facts and procedures founded on psychologic data. They are metaphysical in type and, like oil and water, no amount of shaking will cause them to mix.

At times this situation puts the psychiatrist in an anomalous position. He knows that his practical problems are pressing for his solution. It is urgent that he utilize every helpful means offered to him, be it physical or metaphysical. But there are occasions when he wishes that all his procedures might have some common denominator.

Doctor Kempf, with his wide experience in psychoanalytic work but with his healthy interest in physiology, particularly of the autonomic nervous system, has been especially well prepared to attack the problem of solving the fundamental relationship between these two systems.

It is a matter of common experience that many of the facts so well brought out by Doctor Kempf have been observed by us in our clinical work. It is to his great credit that he has not only observed them, but explained them. He makes it possible for us to again review these observations in our daily work. I hope the time will come in the not far distant future when it will be possible for the psychiatrist to think just as physiologically as the internist. It is true that it seems unlikely that in the near future the relationship of much psychologic data can be related to the physiological laws, but every advance made in that direction (and Doctor Kempf's contributions have been great) will make for increasing efficiency of our psychiatric work and satisfaction in practicing our specialty.

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WALTER F. SCHALLER, M. D. (909 Hyde Street, San Francisco).—For many years Doctor Kempf has investigated the relationship of the autonomic system to psychologic states. During the winter of 1918-1919 I had the pleasure of listening to a paper read by Doctor Kempf on this subject in a program of the New York Neurological Society, in which he outlined the views subsequently published in his book, "Autonomic Functions and the Personality." Doctor Kempf in his present paper now formulates a more precise conception of the sensorimotor reflex to explain the meaning of postural muscular tensions, which, in effect, he believes underlie behavior, that exteroceptive stimulation is moderated by these tensions, that they hold affective pressures to conform to given situations, and that conditions become serious when these tensions are used to suppress disturbing wishes, emotions, and memories. Dystonic states then ensue, which, according to their different mechanisms, determine neuroses and psychoses. The author admits that mentation influences these tensions, and that in depressed states muscular tonus is altered. It is not specifically stated that the emotions have a peripheral origin, but this appears to be the inference, and that the hypothesis supports the James Lange theory of the emotions. I would ask the author to clarify this particular point, as I am still to be convinced that the higher psychic functions expressed by mentation do not originate and determine our affective states. I am aware that the author has analyzed the experiments of Sherrington and Cannon to support his theory, drawing somewhat different conclusions from certain of these experiments, notably, the classical spinal and vagal deafferentation of Sherrington.

Let us suppose a situation of everyday life, occurring in an individual of normal nervous stability, with no previous disturbing mental complexes. He turns on the bath water, and in the meanwhile is engaging in pleasurable conversation in another room; suddenly he recollects that the water must have overflowed, with probably considerable damage. He immediately associates ideas of carelessness, discomfort, and financial loss, and with these ideas set into motion, suddenly starts toward the bathroom with tense muscles and vasomotor reactions, accompanied by a feeling of discomfort and apprehension. Whether the primary thoughts make him fear, or the postural tension engendered by these thoughts make him fear, it is obvious that the whole psychomotor activity is set in motion by pure mentation. That postural tensions may act conversely, as suggested by the author, forming a vicious circle, is freely admitted, and may be combated by medicinal and physiotherapeutic measures in common use. If, according to the author, however, the postural tensions determine psychopathology, why then is it not logical to emphasize physical therapy rather than psychotherapy by dialectics, persuasion, analysis, and punishment, as advocated by the author?

The state which the author describes as a wide-open exteroceptive apparatus is well recognized by neuropsychiatrists. The control of these afferent stimuli has, to my mind, been best explained by cerebral inhibition, rather than peripheral control. A comparison may be had in the well-known physiological effect of lack of pyramidal control of the tendon reflexes. When the inhibitory cerebral neuron is depressed, the exteroceptive stimulus of the tendon tap is allowed full play through the uninhibited reflex arc.

These criticisms just voiced are in the spirit of doubt and inquiry. I render homage to Doctor Kempf as a brilliant investigator in probably the most complex problem in all medicine.

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DOCTOR KEMPF (Closing).—Doctor Mehrtens and Doctor Schaller both call attention to the importance of mentation (idea, belief) in producing affective changes and changes in postural tensions. There is much evidence to show that mentation in relation to environmental situations influences affectivity and postural tensions. In this paper I wish to bring out how postural tensions are intrinsic to the reflex efferent-afferent-efferent circuit, and how such circuits are compounded through integrative associations into higher unities or postural attitudes having definite characterological significance.

It is common experience that any idea, as such, has little weight in everyday life until affective reactions occur and attitude changes occur. Then we react according to the affectivity and the attitude. For instance, the association of secondary ideas to the initial idea may be flight, or fight, or indifference, or amusement, or chagrin—according to the affectivity and attitude. At one time we may be amused at the bathtub situation and at another quite exasperated. Through learning to read the language of postural attitudes we learn to understand the deeper affective and characterological make-up of the patient and ourselves in particular kinds of situations, especially in personal relations.

I wish to express my appreciation of the important co-determinants of human behavior which Doctor Mehrtens and Doctor Schaller each so interestingly added for consideration in relation to the influence of postural tensions. I regret that the length of the paper prevents me from discussing the James-Lange theory of the origin of emotions. I am preparing for publication a theory of the continuity of the stream of autonomic-affective pressure, its origin, nature, and function, in which a full discussion of states of its emotional variation to cerebral and environmental influences as well as metabolic or internal influences will be brought out.

THE MENTAL HYGIENE SURVEY OF CALIFORNIA*

PART II

By FREDERICK H. ALLEN, M. D.
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AND
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Los Angeles

PROBLEMS RELATED TO THE MENTALLY DEFICIENT AND BACKWARD

A PROBLEM that confronts each community is the development and utilization of adequate facilities to assist as many persons as possible to adjust themselves to whatever they are capable of doing. Each community, therefore, has a large responsibility in the field of the mentally deficient. The state's function begins with the remaining group, who indicate through their behavior that they are not making a satisfactory adjustment and also with that vegetative type that presents mainly a custodial problem. The most important factor in adjusting these intellectually retarded and deficient persons is the public school. A partial survey carried out by the State Department of Education revealed that 13,617 mentally retarded children were in the public schools and that 5710 of this number had an intelligence quotient below 70. Approximately 90 per cent of the mentally retarded can be adapted to community life in activities consistent with their abilities. In order to adequately cope with this problem, it is necessary to recognize those pupils early who are mentally retarded and whose low intelligence level interferes with their adjustment in the average classroom. Every school system having more than ten such children should provide a specially trained teacher for this group. Larger communities should develop their work in special centers modeled after those now in operation in Los Angeles and San Francisco. Small communities will needs depend upon traveling clinics or assistance provided by the State Department of Education. State aid up to 50 per cent of the cost should be available to those communities whose finances are inadequate to permit them to develop special class work.

The principle of complete state care of the mentally deficient should be continued, and counties should be relieved of those charges in need of institutional care. At least 1000 additional beds are indicated at this time to provide facilities for those children obviously in need of institutional care. The two State Homes, at the time of the survey, cared for 2812 patients; of these, 325 were in one institution and 2487 in the other. The larger home cared for its charges at a per capita cost of sixty-eight cents a day, making it impossible to provide an adequate educational program and allowing only bare custodial care. The per capita allowance for these institutions should be at least one dollar a day.

A separate institution should be provided for the care and treatment of the 1037 epileptic patients now scattered throughout all the state institutions.

MENTAL PROBLEMS OF DELINQUENCY

Programs developed for the understanding and treatment of juvenile and adult delinquency, both in the communities and in the institutions, should be based upon the established psychological fact that behavior, expressing itself as delinquency, has meaning to the individual and so has reason for existing. Treatment, therefore, should have as its primary objective the understanding and removal of the underlying causes of the behavior so expressed. This approach provides the best means of changing the delinquent person to one with normal behavior. The modification of behavior through punishment becomes a method of decreasing importance as it is replaced by the clinical and mental hygiene approach. The following recommendations are made to give this primary objective a more effective application:

1. Curtailment of the scope of the Juvenile Court with the elimination (1) of all dependency cases except those needing court orders for their

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* Read before the Neuropsychiatry Section of the California Medical Association at the sixtieth annual session at San Francisco, April 27-30, 1931. Part I was printed in September California and Western Medicine, page 177.

Editor's Note.—See, also, a preliminary report on the California State Mental Hygiene Survey in December 1930 California and Western Medicine, page 872.